

PATENT

Atty Docket No.: 200207272-1
App. Ser. No.: 10/789,744

IN THE CLAIMS:

Please find a listing of the claims below, with the statuses of the claims shown in parentheses. This listing will replace all prior versions, and listings, of claims in the present application.

1. (Currently Amended) A carriage drive system, comprising:

a variable speed drive motor ~~[[for]]~~ configured to propel~~[[ing]]~~ a movable carriage along a slide rod, wherein the movable carriage supports print heads having an ink ejecting nozzle, and wherein the variable speed drive motor is an electric motor having a gear ratio resulting in a high carriage speed and a gear ratio resulting in a low carriage speed; and

a centrifugal clutch mechanism-for operable to switch~~[[ing]]~~ between the ~~the~~ ~~[[a]]~~ gear ratio resulting in a high carriage speed and ~~the~~ ~~[[a]]~~ gear ratio resulting in a low carriage speed wherein the centrifugal clutch is an automatic two-way clutch, such that switching between the gear ratio resulting in the high carriage speed to the gear ratio resulting in a low carriage speed and switching between the gear ratio resulting in the low carriage speed to the gear ratio resulting in the high carriage speed both occur automatically based upon the operational speed of the drive motor

mechanism-for switching between the gear ratio resulting in a high carriage speed and the gear ratio resulting in a low carriage speed is actuated automatically.

2. (Canceled).

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3. (Original) A carriage drive system according to claim 1, wherein the gearing mechanism is a planetary gear assembly having:

a sun gear driven by the drive motor;

a ring gear; and

a plurality of planet gears associated with a planet carrier.

4. (Currently Amended) A carriage drive system according to claim 3, wherein operation of the drive motor at a high speed causes the centrifugal clutch ~~mechanism for switching between gear ratios~~ to engage the ring gear causing the planet gears and the drive gear to be locked together such that they rotate as one with the sun gear resulting in a 1:1 gear ratio and operation of the drive motor at a low speed causes the mechanism for switching between gear ratios to disengage the ring gear causing the sun gear to turn the planet gears which turn the ring gear resulting in a gear ratio greater than 1:1.

5. (Original) A carriage drive system according to claim 3, further comprising a speed calibration member for adjusting the gear ratio between the drive motor and the ring gear.

6. (Original) A carriage drive system according to claim 5, wherein the gear ratio between the drive motor and the ring gear is proportional to a friction force between the planet carrier and the speed calibration member.

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7. (Currently Amended) A printer, comprising:

a movable carriage supporting print heads having an ink ejecting nozzle;
a slide rod for supporting and guiding the movable carriage;
a variable speed drive motor configured to ~~[[for]]~~ propel~~[[ing]]~~ the movable carriage along the slide rod, wherein the variable speed drive motor is an electric motor;
a gearing mechanism having a gear ratio resulting in a high carriage speed and a gear ratio resulting in a low carriage speed; and
a centrifugal clutch mechanism ~~for operable to switch~~~~[[ing]]~~ between the gear ratios wherein the centrifugal clutch is an automatic two-way clutch, such that switching between the gear ratio resulting in a high carriage speed to the gear ratio resulting in a low carriage speed and switching between the gear ratio resulting in a low carriage speed to the gear ratio resulting in a high carriage speed both occur automatically based upon the operational speed of the drive motor ~~mechanism for switching between the gear ratios~~ ~~is actuated automatically.~~

8. (Canceled).

9. (Original) A printer according to claim 7, wherein the gearing mechanism is a planetary gear assembly having:

a sun gear driven by the drive motor;
a ring gear; and
a plurality of planet gears associated with a planet carrier.

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10. (Currently Amended) A printer according to claim 9, wherein operation of the drive motor at a high speed causes the centrifugal clutch mechanism-for-switching-between gear-ratios to engage the ring gear causing the planet gears and the drive gear to be locked together such that they rotate as one with the sun gear resulting in a 1:1 gear ratio and operation of the drive motor at a low speed causes the centrifugal clutch mechanism for-switching-between-gear-ratios to disengage the ring gear causing the sun gear to turn the planet gears which turn the ring gear resulting in a gear ratio greater than 1:1.

11. (Original) A printer according to claim 9, further comprising a speed calibration member for adjusting the gear ratio between the drive motor and the ring gear.

12. (Original) A printer according to claim 11, wherein the gear ratio between the drive motor and the ring gear is proportional to a friction force between the planet carrier and the speed calibration member.

13. (Original) A printer according to claim 12, wherein the speed calibration member is manually adjustable.

14. (Currently Amended) A method for printing, comprising:

activating a variable speed drive motor to propel a movable carriage along a slide rod, wherein the movable carriage supports print heads having an ink ejecting nozzle and wherein the variable speed drive motor is an electric motor having a gear ratio resulting in a high carriage speed and a gear ratio resulting in a low carriage speed;

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switching between the ~~[[a]]~~ gear ratio resulting in a high carriage speed and the ~~[[a]]~~ gear ratio resulting in a low carriage speed;

wherein switching between the gear ratio resulting in a high carriage speed to ~~[[and]]~~ the gear ratio resulting in a low carriage speed and switching between the gear ratio resulting in the low carriage speed to the gear ratio resulting in the high carriage speed both occur~~[[s]]~~ automatically by means actuated by the operational speed of the drive motor.